R&D Talent in Singapore and A*STAR

Prof Alfred Huan
Executive Director
A*STAR Graduate Academy
1. Research in Singapore
2. Career Opportunities for PhD Talent
3. Get Started with A*STAR Scholarships
Strong Commitment to R&D in Singapore

"R&D is an important activity in a knowledge-based economy like Singapore ... Through R&D, we drive innovations that improve our lives ... develop new economic opportunities ... retain and develop our own talented scientists and researchers ... our policy and practice has been to have steady, long-term investments in R&D"

- PM Lee Hsien Loong at the opening of Campus for Research Excellence and Technological Enterprise (CREATE), Nov 2012

<table>
<thead>
<tr>
<th>Plan Name</th>
<th>Period</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Technology Plan</td>
<td>(1991-1995)</td>
<td>S$2 billion</td>
</tr>
<tr>
<td>National Science &amp; Technology Plan</td>
<td>(1996-2000)</td>
<td>S$4 billion</td>
</tr>
<tr>
<td>Research, Innovation &amp; Enterprise RIE</td>
<td>2015</td>
<td></td>
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</tbody>
</table>
Singapore’s Research Ecosystem

- CREATE Campus
- Biopolis and Fusionopolis
- Mediopolis
- A*STAR Biopolis and Fusionopolis
- Seletar Aerospace Park
- Lee Kong Chian School of Medicine
- Cleantech Park
- Tuas Biomedical Park
- Jurong Island
- National Research Foundation
- NUS
- Singapore Science Park

- A*STAR
- Academia
- Industrial Parks
Growing Pool of PhD Talent

- Number of RSEs in Singapore has grown at ~7% since 2000
- Number of RSEs with PhD has grown ~9% since 2000

**RSEs in Public & Private Sector**

Total RSEs in 2011 = 29,482

**PhD RSEs in Public & Private Sector**

Total PhD RSEs in 2011 = 7,754

Source: Annual National Survey of R&D in Singapore
Singapore: Innovation and Research Intensity

World of R&D 2012
Size of circle reflects the relative amount of annual R&D spending by the country noted.

Global Innovation Index
2013 Ranking

<table>
<thead>
<tr>
<th>Country/Economy</th>
<th>Score (0–100)</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switzerland</td>
<td>66.59</td>
<td>1</td>
</tr>
<tr>
<td>Sweden</td>
<td>61.36</td>
<td>2</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>61.25</td>
<td>3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>61.14</td>
<td>4</td>
</tr>
<tr>
<td>United States of America</td>
<td>60.31</td>
<td>5</td>
</tr>
<tr>
<td>Finland</td>
<td>59.51</td>
<td>6</td>
</tr>
<tr>
<td>Hong Kong (China)</td>
<td>59.43</td>
<td>7</td>
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<tr>
<td>Singapore</td>
<td>59.41</td>
<td>8</td>
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<tr>
<td>Denmark</td>
<td>58.34</td>
<td>9</td>
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<tr>
<td>Ireland</td>
<td>57.91</td>
<td>10</td>
</tr>
<tr>
<td>Canada</td>
<td>57.60</td>
<td>11</td>
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<tr>
<td>Luxembourg</td>
<td>56.57</td>
<td>12</td>
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<tr>
<td>Iceland</td>
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<td>Israel</td>
<td>55.98</td>
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<td>Germany</td>
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<tr>
<td>Norway</td>
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<td>New Zealand</td>
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<td>Korea, Rep.</td>
<td>53.31</td>
<td>18</td>
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<tr>
<td>Australia</td>
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<td>19</td>
</tr>
<tr>
<td>France</td>
<td>52.83</td>
<td>20</td>
</tr>
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By Insead Business School

Source: Battelle, R&D Magazine, International Monetary Fund, World Bank, CIA World Factbook, OECD
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A*STAR’s Research Entities
A*STAR has more than 2,900 RSEs
(Including international talent from some 60 countries)
SERC RIs

Electronics

Infocomm

Chemicals & Materials

Engineering
Building Biomedical R&D Capabilities

Phase 1: 2000 - 2005
- Genome Institute of Singapore
- Institute of Molecular & Cell Biology
- Bioinformatics Institute
- Bioprocessing Technology Institute
- Biotechnology Institute

Phase 2: 2006 - 2010
- Institute of Bioengineering & Nanotechnology
- Singapore Bioimaging Consortium
- Singapore Institute for Clinical Sciences
- Singapore Immunology Network
- Experimental Therapeutics Centre
- Institute of Medical Biology
- p53 Laboratory
- Molecular Engineering Laboratory
- Translational Laboratory in Genetic Medicine
- Clinical Imaging Research Centre

Phase 3: Integrating for Impact

Other BMRC labs and joint initiatives:
Go to: http://www.research.a-star.edu.sg/

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Expanding Horizons
A PhD at A*STAR opens up multiple career pathways

Scientific:
- Principal Investigators,
- Technology Platform Specialists, Project/Team Leader,
- Senior Scientists etc.

- Clinician-Scientist
- Industry R&D
- Business Development
- Research Admin & Policy
- Technology startups
- Science Journalism
- Academia
- Government
- Science Education
- Patent Examiner
- Tech Transfer / Commercialisation
- Other Careers
Our Scholars Today: Careers

A PhD opens doors to a world of opportunities!

R&D
- IMB
  - Jonathan Loh (AGS - NUS)
- BTI
  - Ho Ying-Swan (NSS-PhD)
- I²R
  - Tan Hwee Pink (NSS-IF)
- IMRE
  - Joel Yang (NSS-PhD)
- IBN
  - Andrew Wan (NSS-PhD)
- IHPC
  - Quek Su Ying (NSS-PhD)

Industry
- ST Electronics
  - Yar Kar Peo (NSS – PhD)
- Abbott
  - Low Yen Ling (NSS-PhD)
- P & G
  - Tanu Kustandi (AGS – NUS)
- L’Oreal
  - Harmeet Singh (AGS – NUS)

Academia
- NUS
  - Teo Peili (AGS - NUS)
- Yale-NUS
  - Melissa Fullwood (NSS-PhD)
- NUS
  - Ho Han Kiat (NSS-PhD)

Spin-Offs
- HistolIndex
  - Gideon Ho (NSS – IF)

Patent Examiner
- IPOS
  - Seah Kwang Hwee (AGS-O)
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A*STAR Scholarships & Fellowships

Diversity of Entry Points

School Awards  |  Post ‘A’ Levels  |  Undergrad  |  PhD  |  Post-doc
---|---|---|---|---
Pipeline Programmes  |  National Science Scholarship (NSS)  |  A*STAR Undergraduate Scholarship (AUS)  |  NSS (PhD)  |  A*STAR International Fellowship
A*STAR Science Awards (Upper Sec, JC, Poly)  |  (BS-PhD & MBBS-PhD)  |  NSS (MD-PhD)  |  A*STAR Graduate Scholarship (AGS)  |  AGS (Postdoctoral Fellowship)

*find out more at the A*GA booth outside*
SCIENCE. SEE THINGS DIFFERENTLY

through science, technology and research to make an impact.

Apply for an A*STAR Scholarship at www.a-star.edu.sg